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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/129,113	08/04/1998	JAMES F. CAMERON	50349	4003
21874	7590	10/11/2006		
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			EXAMINER GILLIAM, BARBARA LEE	
			ART UNIT	PAPER NUMBER

1752

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/129,113

Applicant(s)

CAMERON ET AL.

Examiner

Barbara L. Gilliam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/27/2003, 3/1/2003, 10/15/2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed March 1, 2003 has been entered and fully considered.
2. Claims 43-54 are pending. Applicant canceled claims 1-26 and 31-42.

Claim Objections

3. Claims 43-54 are objected to because of the following informalities: In the last line of claim 43, hydroxylic is misspelled.. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. Claims 43-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over SINTA et al. (US 5,731,364)
 - a. SINTA et al teach a photoresist composition comprising a resin binder and a photoactive component, the photoactive component comprises a plurality of distinct aryl sulfonium photoactivatable compounds (claim 1). The photoactive cation is preferably a di-cation compound, particularly compound of formula VI wherein R is the same or different and is a substituted or unsubstituted aryl group and each Q is a sulfonate or carboxylate anion (column 3, lines 24-38). When substituted, the R groups are substituted at one or more available positions by halogens, alkyl groups, alkoxy groups, alkenyl groups, aryl groups (column 5, lines 39-60). Suitable counter ions are given in column 4, line 28 - column 6, line 51, which include benzylsulfonate, C₁₋₁₂ alkyl sulfonates such as mesylate, aryl tosylates and halogenated alkyl sulfonates such as

triflate. The photoactive sulfonium compound meets the present limitations for the sulfonium photoacid generator. The resin binder has functional groups that impart alkaline aqueous developability to the resist composition. Preferable resin binders comprise polar functional groups such as hydroxyl or carboxylate (column 7, line 38 - 50). A substituted ester moiety, taught as a suitable acid labile group of the resin is described in column 9, lines 23-27. Preferred acid labile moieties are acetate groups including t-butyl acetate, acetals and ketals (column 9, lines 44 - 49). The resin binder comprising an acid labile group meets the present limitations for the component that comprises photoacid-labile groups. A resist can be prepared by dissolving the components of the photoresist in a suitable solvent such as propylene glycol monomethyl ether and lactates such as ethyl or methyl lactate (column 11, lines 10-26). SINTA et al. further teach that the photoresists may be applied to a substrate in liquid form (column 11, lines 27-32). Propylene glycol monomethyl ether meets the present limitations for a non-hydroxylic solvent.

b. Therefore it would have been *prima facie* obvious to make a photosensitive composition comprising a binder resin with acid labile groups and a di-cation sulfonium photoacid generator comprising a sulfonate counter anion and to coat the composition on a microelectronic wafer using propylene glycol monomethyl ether acetate to obtain a photoresist with excellent lithographic properties that can be used in accordance with known procedures based on the teachings of SINTA et al. (column 3, lines 38-42 & column 11, lines 27-41).

Response to Arguments

5. The rejections under 35 USC 103(a) over OHSAWA et al. (US 5,847,218) and AOAI et al. (US 5,693,452) are withdrawn in light of the new claims.

6. Applicant's arguments with respect to SINTA et al. (US 5,731,364) are not persuasive.

a. Applicant argued the examples of the SINTA et al. patent contains ethyl lactate as the only solvent which is not a non-hydroxylic solvent. Applicant pointed to the disclosure of SINTA et al. wherein a list of photoresist solvents are identified and concluded that no suggestion is seen to select a solvent such as Applicants or the good that would be provided by that selection. The Examiner disagrees. The claims are properly rejected under 35 USC 103(a) as required under said statute. "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP 706.02(j). Additionally one of ordinary skill in the art would clearly envisage using any of the solvents specifically taught by SINTA et al.

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including the non-hydroxylic solvents such as propylene glycol monomethyl ether. In response to the "good" that would be provided by selection of a solvent such as Applicant's, Applicant is reminded that "[a]ny differences between the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). MPEP 716.02. Applicant also argued SINTA et al. do not disclose the use of lipophilic substituents, i.e. one more photoacid generator moieties having 4 or more carbon atoms. However as pointed out in the rejection, SINTA et al. clearly teaches Suitable counter ions are given in column 4, line 28 - column 6, line 51, which include benzyisulfonate, C₁₋₁₂ alkyl sulfonates as suitable M groups (col. 4, lines 27-46).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara L. Gilliam whose telephone number is 571-272-1330. The examiner can normally be reached on Monday through Thursday, 8:00 AM - 5:30 PM.

a. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

b. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Barbara L. Gilliam

Barbara L. Gilliam
Primary Examiner
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bg

October 2, 2006